

Introduction to Matrices - Lab

Two math teachers, tired of grading papers, decided to open a new athletic shoe store. The samples below are only a small part of their inventory. Imagine how many different kinds of shoes of all the most popular brands they actually had to keep in stock to be successful. Think about the necessary mathematics for this vast amount of data as you answer the following questions.

The two entrepreneurs ordered some of every kind of shoe to start (basing the numbers on a popularity survey they found on Wikipedia) as indicated in the first matrix. The manufacturers all charged the price listed in the second matrix. How much did the two former teachers owe each manufacturer?

	<i>reebok</i>	<i>nike</i>	<i>addidas</i>
<i>football</i>	30	40	45
<i>baseball</i>	40	40	45
<i>running</i>	50	45	50
<i>basketball</i>	40	40	50
<i>volleyball</i>	30	35	40

	<i>football</i>	<i>baseball</i>	<i>running</i>	<i>basketball</i>	<i>volleyball</i>
<i>Cost</i>	17.34	18.04	15.48	21.13	15.94

What calculations were necessary to answer the question?

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At the end of the first year, the new store owners had sold the numbers of shoes shown in the matrix below. The retail price they charged was 450% of the manufacturer price. Create a matrix to show those prices, then calculate the total income from sales.

	<i>reebok</i>	<i>nike</i>	<i>addidas</i>
<i>football</i>	16	21	34
<i>baseball</i>	19	21	29
<i>running</i>	28	40	38
<i>basketball</i>	30	34	36
<i>volleyball</i>	18	35	30

The remaining inventory was marked down 50% off of the original retail price. Remarkably, all of that inventory sold at that price. What was the total profit for the shoe business that year if the multitude of other costs were not considered? What operations were necessary to find the total profit?